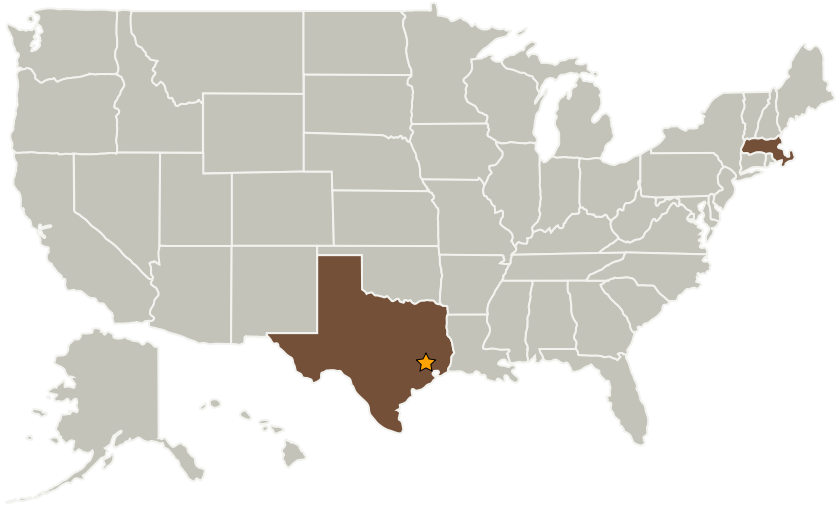
SELENE - Self-Forming Extensible Lunar EVA Network, Phase II

Completed Technology Project (2009 - 2011)

Project Introduction

The Lunar EVA network will exhibit a wide range of connectivity levels due to the challenging communications environment and mission dynamics. Disruption-Tolerant Networking (DTN) enables communications in environments where intermittent end-to-end connectivity occurs due to nodes moving temporarily out of range by taking advantage of persistent storage and mobility. DTN forwarding is a mature technology, but requires an adaptable routing algorithm that covers opportunistic and scheduled modes of operation under stable or disrupted connectivity. SSCI, in collaboration with Boston University and BBN Technologies proposes novel adaptive hybrid routing protocols and efficient data set reconciliation algorithms that will significantly enhance the scalability and performance of state-of-the-art DTN approaches. SSCI further proposes to develop the SELENE DTN system prototype using COTS hardware and demonstrate data muling capability in a 20-node network. SELENE technologies will provide the Lunar EVA network with the reliability necessary to support Lunar missions in the extreme network conditions on the Lunar surface. Through Phase II, SSCI will identify and secure commitments from industry and government transition partners to transition SELENE to commercial applications.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Scientific Systems Company, Inc.	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Woburn, Massachusetts

Primary U.S. Work Locations	
Massachusetts	Texas

Project Transitions

February 2009: Project Start

August 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.3 Internetworking
    - TX05.3.3 Information Assurance